CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

Job No: CTCE/BBMP/W.No.03/KRIDL/CSR.1/748b/CEMENT/2014-15

Date: 28.01.2015

TEST REPORT ON CEMENT

*CUSTOMER	:	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
*AGENCY	:	**Technical Manager (West),** KRIDL, Bangalore.
*NAME OF THE WORK	:	Cement Concrete Roads and Drains in Chikkabettahalli Aishwaraya bakery road and surrounding roads in Attur Ward No.03 of Yelahanka Satellite Town Sub division, BBMP, Bangalore.
REFERENCE	:	BBMP/EE(YNK.D)/W.O/467/2013-14 Dated: 06.02.2014
SAMPLE ID	:	Cement
SAMPLE RECEIVED ON	:	27.01.2015
PERIOD OF TESTING	:	27.01.2015 to 28.01.2015

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	28.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	140 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988(RA-2009)	485 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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T-2377

Job No.: CTCE/BBMP/W.No.03/KRIDL/CSR.1/748b/SAND-Gradation/2014-15 : 28.01.2015

TEST REPORT ON DETERMINATION GRADATION OF FINE AGGREGATES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	: Cement Concrete Roads and Drains in Chikkabettahalli, Aishwataya bakery road and surrounding roads in Attur Ward No.03 of Yelahanka Satellite Town Sub division, BBMP, Bangalore.
Reference	: BBMP/EE(YNK.D)/W.O/467/2013-14 Dated: 06.02.2014
Technical Reference	: IS : 2386 Part 1 - 1963 RA-2007
Sample ID	: Fine Aggregates
Sample Received on	: 27.01.2015
Date of Testing	: 28.01.2015

Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	94.64	90-100	90-100	90-100	95-100
2.36	81.92	60-95	75-100	85-100	95-100
1.18	59.57	30-70	55-90	75-100	90-100
600 Micron	27.99	15-34	35-59	60-79	80-100
300 Micron	15.75	5-20	8-30	12-40	15-50
150 Micron	7.09	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

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Job No.: CTCE/BBMP/W.No.03/KRIDL/CSR.1/748b/AGG/GR/2014-15 : 28.01.2015

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	: Cement Concrete Roads and Drains in Chikkabettahalli, Aishwaraya bakery road and surrounding roads in Attur Ward No.03 of Yelahanka Satellite Town Sub division, BBMP, Bangalore.
Reference	: BBMP/EE(YNK.D)/W.O/467/2013-14 Dated: 06.02.2014
Technical Reference	: IS : 2386 Part 1 -1963 RA-2007
Sample ID	: Coarse Aggregates (40mm)
Sample Received on	: 27.01.2015
Date of Testing	: 28.01.2015

Total Wt. of Aggregates in gms= **10000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	96.77	95-100	85-100
20	49.90	30-70	0-20
10	23.98	10-35	0-5
4.75	2.40	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits.

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Job No.: CTCE/BBMP/W.No 03/KRIDL/STEEL/2014-15

28.01.2015

TEST REPORT ON REINFORCEMENT STEEL

Customer	:	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
Name of the work	:	Cement Concrete Roads and Drains in Chikkabettahalli, Aishwaraya bakery road and surrounding roads in Attur Ward No.03 of Yelahanka Satellite Town Sub division, BBMP, Bangalore.
Reference	:	BBMP/EE(YNK.D)/W.O/467/2013-14 Dated: 06.02.2014
Date of Test	:	28.01.2015
Technical Reference	:	IS: 1786-2008

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm²	Tensile strength (Ultimate stress) N/mm²	Elongation percent gauge length		
1	12	0.89	515	558	13.80	O.K	O.K

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Job No.: CTCE/BBMP/W.No.03/KRIDL/CSR.1/748b/Kerb Stone/2014-15 04.05.2015

TEST REPORT ON CONCRETE CORE (KERB STONE)

* Name of Client	:	**Asst. Executive Engineer,** Hebbal Sub Division, BBMP, Bangalore.
* Name of Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of work	:	Cement Concrete Roads and Drains in Chikkabettahalli, Aishwaraya bakery road and surrounding roads in Attur Ward No.03 of Yelahanka Satellite Town Sub division, BBMP, Bangalore.
Referece	:	BBMP/EE(YNK.D)/W.O/467/2013-14 Dated: 06.02.2014
Techinical Reference	:	IS:516-1959 (Reaffirmed 2008), SP-24:1983.
Sample ID	:	Kerb Stone
Sample received on	:	01.052015
Date of Testing	:	04.05.2015

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	77.00	0.386	2553.09	1.54	0.955	25.30	12.89	13.92	13.29	16.61
2	50.00	79.00	0.393	2533.59	1.58	0.960	25.85	13.17	14.22	13.65	17.06
3	50.00	80.00	0.402	2559.21	1.60	0.960	26.40	13.45	14.52	13.94	17.43

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Job No.: CTCE/BBMP/W.No.03/KRIDL/CSR.1/748b/CUBE/2014-15

01.05.2015

TEST REPORT ON CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	: Cement Concrete Roads and Drains in Chikkabettahalli, Aishwaraya bakery road and surrounding roads in Attur Ward No.03 of Yelahanka Satellite Town Sub division, BBMP, Bangalore.
* Reference	: BBMP/EE(YNK.D)/W.O/467/2013-14 Dated: 06.02.2014
* Sample ID	: Coping Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{15}
Compressive Strength as o	: 28^{th} day
Sample Received on	: 03.04.2015

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	03.04.2015	01.05.2015	8.254	365.8	16.26
2	03.04.2015	01.05.2015	8.367	376.3	16.72
3	03.04.2015	01.05.2015	8.426	389.4	17.31

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Job No.: CTCE/BBMP/W.No.03/KRIDL/CSR.1/748b/CUBE/2014-15

12.06.2015

TEST REPORT ON CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	: Cement Concrete Roads and Drains in Chikkabettahalli, Aishwaraya bakery road and surrounding roads in Attur Ward No.03 of Yelahanka Satellite Town Sub division, BBMP, Bangalore.
* Reference	: BBMP/EE(YNK.D)/W.O/467/2013-14 Dated: 06.02.2014
* Sample ID	: Covering Slab Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{20}
Compressive Strength as o	: 28^{th} day
Sample Received on	: 15.05.2015

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	15.05.2015	12.06.2015	8.364	493.4	21.93
2	15.05.2015	12.06.2015	8.475	508.2	22.59
3	15.05.2015	12.06.2015	8.293	485.7	21.59

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Job No.: CTCE/BBMP/W.No.03/KRIDL/WMM/Gradation/2014-15

27.04.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Cement Concrete Roads and Drains in Chikkabettahalli, Aishwaraya bakery road and surrounding roads in Attur Ward No.03 of Yelahanka Satellite Town Sub division, BBMP, Bangalore.

Reference : BBMP/EE(YNK.D)/W.O/467/2013-14 Dated: 06.02.2014

Date of Testing : 01.06.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **25300**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	970	970	3.8	96.2	95-100
22.4	5215	6185	24.4	75.6	60-80
11.2	5560	11745	46.4	53.6	40-60
4.75	4375	16120	63.7	36.3	25-40
2.36	3545	19665	77.7	22.3	15-30
0.600	2250	21915	86.6	13.4	8-22
0.075	2265	24180	95.6	4.4	0-8

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Job No.: CTCE/BBMP/W.No.03/KRIDL/BM/Bitumen/2014-15 08.06.2015

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX

AS PER IS2386 & IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Cement Concrete Roads and Drains in Chikkabettahalli, Aishwaraya bakery road and surrounding roads in Attur Ward No.03 of Yelahanka Satellite Town Sub division, BBMP, Bangalore.
REFERENCE	BBMP/EE(YNK.D)/W.O/467/2013-14 Dated: 06.02.2014
SAMPLE I/D	Road and surrounding roads in Attur Ward No.03
DATE OF TESTING	08.06.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	482.5	482
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	17.5	18.00
7. Bitumen content in %	3.50	3.60
8. Average	3.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	32.63	6.76	6.76	93.24	90-100
13.2	174.2	36.10	42.87	57.13	56-88
4.75	165.8	34.36	77.23	22.77	16-36
2.36	52.45	10.87	88.10	11.90	4-19
0.3	33.57	6.96	95.06	4.94	2-10
0.075	7.23	1.50	96.56	3.44	0-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	36.32	7.26	7.26	92.74	90-100
13.2	154.8	30.96	38.22	61.78	56-88
4.75	193.6	38.72	76.94	23.06	16-36
2.36	75.24	15.05	91.99	8.01	4-19
0.3	21.28	4.26	96.25	3.75	2-10
0.075	5.84	1.17	97.42	2.58	0-8

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Job No.: CTCE/BBMP/W.No.03/KRIDL/SDBC/Bitumen/2014-15 12.06.2015

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX AS PER IS2386 & IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Cement Concrete Roads and Drains in Chikkabettahalli, Aishwaraya bakery road and surrounding roads in Attur Ward No.03 of Yelahanka Satellite Town Sub division, BBMP, Bangalore.
REFERENCE	BBMP/EE(YNK.D)/W.O/467/2013-14 Dated: 06.02.2014
SAMPLE I/D	Road and surrounding roads in Attur Ward No.03
DATE OF TESTING	12.06.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	474.5
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	25.50
7. Bitumen content in %	5.20	5.10
8. Average	5.15	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	25.47	5.37	5.37	94.63	90-100
4.75	262.3	55.34	60.71	39.29	35-51
2.36	56.48	11.92	72.63	27.37	24-39
1.18	32.15	6.78	79.41	20.59	15-30
0.3	27.24	5.75	85.16	14.84	9-19
0.075	45.58	9.62	94.77	5.23	3-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	32.65	6.88	6.88	93.12	90-100
4.75	243.4	51.30	58.18	41.82	35-51
2.36	52.85	11.14	69.32	30.68	24-39
1.18	48.67	10.26	79.57	20.43	15-30
0.3	37.24	7.85	87.42	12.58	9-19
0.075	43.15	9.09	96.51	3.49	3-8

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